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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/332,919	06/14/1999	MICHAEL F. DEERING	5181-27800	3500

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EXAMINER	
NGUYEN, PHU K	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/332,919	DEERING ET AL	
	Examiner	Art Unit	
	Phu K. Nguyen	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-21 and 23-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-21 and 23-33* is/are allowed.

6)☒ Claim(s) *34,37-47 and 50-58* is/are rejected.

7)☒ Claim(s) *35,36,48 and 49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Phu Nguyen

PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETADED ACTION

Allowed Subject Matter

Claim 14 is allowed because no prior art suggests or implies, in a method for decompressing and rendering compressed 3D geometry data, detecting control information within the compressed 3D geometry data and routing blocks of data to one or more decompressors according to said control information.

Claims 15-2 1 are allowed because they depend on allowed claim 14.

Claim 23 is allowed because no prior art suggests or implies, in a graphics system for decompressing and rendering compressed 3D geometry data wherein said decompress pipelines are configured to cache said blocks of compressed vertex information to a memory, and wherein said decompress pipelines are further configured to retrieve said cached blocks of compressed vertex information from said memory as said blocks are required by said decompress pipelines.

Claims 24-32 are allowed because they depend on allowed claim 23.

Claim Rejections

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 34, 37 and 51 are rejected under 35 U.S.C. 102(e) as being anticipated by Koss et al. (Koss, U.S. Pat. No. 5,801,711).

Koss, in disclosing management techniques for enhancing performance of a computer graphics system, also discloses, with respect to claim 34, a control unit configured to receive 3D geometry data (distributor chip 30, FIG. 1) wherein said 3D geometry data comprises a plurality of blocks (col.5, line 1-5 states that the geometry accelerator chips decompose quadrilaterals (blocks) into triangles), and a plurality of decompress pipelines (geometry accelerators 32A-C and 34, FIG. 1), wherein said control unit is configured to selectively route said blocks to one or more of said decompress pipelines (col.4, line 52-55), wherein each block comprises compressed vector information (col.4, lines 16-21), wherein said plurality of decompress pipelines are configured to decompress said blocks into a plurality of vertices of resulting data" after decomposition, col. 16, l.45-col.7, l.9), wherein said control unit is configured to route said blocks to said one or more of said decompress pipelines when said blocks are required by said decompress pipelines (of course this is going to occur in any

process, the control unit will route the data corresponding to the processing units for the process to work).

RESPONSE TO APPLICANT'S ARGUMENTS:

Applicant's arguments filed 6/23/2003 have been fully considered, but they are not deemed to be persuasive. Applicant argues that Koss does not teach a system where "compressed geometry data" is received, and decompress pipelines operate to decompress this compressed vertex information to produce a plurality of vertices. In comparison to the result data of pixels on the display screen, Koss' geometry data received in the front end board 10 is in compress form; specifically, the received data in the front end board 10 is only coordinate, color, texture data of few primitives of the display polygon. These received primitives will be processed or decompressed into the data of pixels for the full screen; for example, the compressed primitives from the received blocks will be decompressed into triangles (column 7, lines 21-25), or the interpolation will decompress the vertices information for generating the data of all the pixels inside the triangles or polygons (column 6, lines 7-16). Koss emphasizes the reduction of transferred data between the host computer and the processing units to increase the efficiency of the system (column 8, lines 34-40). Therefore, Koss teaches the claimed "compressed" geometry data including only primitive data and process of decompress these data for displaying the pixels on the screen.

Regarding claims 37 and 51, Koss discloses transform units configured to transform said vertices from a first reference coordinate system to a second reference coordinate system (col.5, 11. 1-3).

Accordingly, in view of the foregoing, claims 34, 37 and 51 have been anticipated by Koss.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 38-47, 50 and 52-58 are rejected under 35 U.S.C. 1 103(a) as being unpatentable over Koss in view of Rossin et al. (Rossin," U.S. Pat. No. 5,862,066).

With respect to claims 38 and 52, Koss discloses setup units configured to reuse selected processed vertices stored in said transformed vertex memory to form said geometric primitives (vertex RAM 102 and 104, FIG.3, and col. 12, 11.4 1-57). However, Koss does not disclose a lighting unit configured to perform one or more vertex processes on said transformed vertices; this element is disclosed by the Rossin geometry accelerator (lighting machine 220, FIG.2). Therefore, it would have been obvious to one of ordinary skill in the m to incorporate the features of the Rossin

geometry accelerator in the Koss geometry accelerators. Such a modification to Koss would provide the flexibility of illumination by one or more light sources (Rossin, co1.5, 11. 14-16).

Considering the other claims in this rejection, regarding claim 39, Koss discloses the transform and setup units and Rossin discloses the lighting unit.

With respect to claims 40-41 and 53-54, Rossin discloses transform units configured to receive and transform vertices independently of the geometric primitives to which said vertices belong, wherein there are no state changes between vertices (col.5, 11.8-1 1).

Concerning claims 42 and 55, Rossin discloses performing lighting calculations independently of the geometric primitives to which said vertices belong (column 5, lines 14-16).

Regarding claims 43 and 56, Rossin discloses vertices subjected to one or more vertex processes before being stored into said transformed vertex memory and before being used to form geometric primitives (co1.2, 11. 15-23).

With respect to claims 44 and 57, Koss discloses said transformed vertices stored in said transformed vertex memory comprise xyz position information, color information and transparency information (col. 12, 11.41-43).

Concerning claims 45 and 58, Rossin discloses transformed vertices further comprising additional per-graphics primitive attributes (co1.2, 11.25-33).

Finally, regarding 46 and 47, Koss discloses a control unit configured to receive 3D geometry data (distributor clip 30, FIG. 1) wherein said 3D geometry data comprises a plurality of blocks (col.5, 11. 1-5 states that the geometry accelerator chips decompose quadrilaterals (blocks) into triangles), and a plurality of decompress pipelines (geometry accelerators 32A-C and 34, FIG. 1), wherein said control unit is configured to selectively route said blocks to one or more of said decompress pipelines (col.4, 11.52-55), wherein each block comprises compressed vector information (co1.4, 11. 16-2 1), wherein said plurality of decompress pipelines are configured to decompress said blocks into a plurality of vertices (resulting data" after decomposition, col. 16, l.45-co1.7, 1.9), wherein each decompress pipeline is coupled to one or more transform units configured to transform said vertices from a first reference coordinate system to a second reference coordinate system (col.5, line 1-3) and wherein setup unit each comprise a transformed vertex memory, wherein each setup unit is configured to store selected processed vertices into said transformed vertex memory and reuse selected-processed vertices stored in said transformed vertex memory to form said geometric primitives (vertex RAM 102 and 104, F1G.3, and col. 12, 11.41-57). However, Koss does not disclose wherein each lighting unit is coupled to one or more setup units; this element is disclosed by the Rossin geometry accelerator (lighting machine 220, FIG.2).

Therefore, it would have been obvious to one of ordinary skill in the m to incorporate the features of the Rossin geometry accelerator in the Koss geometry accelerators. Such a modification to Koss would provide the flexibility of illumination by one or more light sources (Rossin, co1.5, 11. 14-16).

Claim 50 adds into claim 47 wherein said control unit is configured to route said blocks to said one or more of said decompress pipelines as said blocks are required by said decompress pipelines (of course this is going to occur in any process, the control unit will route the data corresponding to the processing units for the process to work).

Accordingly, in view of the foregoing, the examiner concludes that Koss and Rossin have rendered claims 38-47 and 52-58 unpatentable.

Claims 35-36, and 48-49 are objected to as being dependent upon a rejected base claim (claim 34), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 35 is indicated as allowable because no prior art suggests or implies, in a graphics system for decompressing and rendering compressed 3D geometry data wherein said decompress pipelines are configured to cache said blocks of compressed vertex information to a memory.

Claim 36 is a dependent claim of claim 35.

Claim 48 is indicated as allowable because no prior art suggests or implies, in a graphics system for decompressing and rendering compressed 3D geometry data wherein said decompress pipelines are configured to cache said blocks of compressed vertex information to a memory.

Claim 49 is a dependent claim of claim 48.

Claims 14-21, 23-33, and 48-50 are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, bipin Shalwala can be reached on (571) 272 7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phu K. Nguyen
May 18, 2005

PHU K. NGUYEN
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